

# ***The Human Population: Growth, Demography, and Carrying Capacity***

**G. Tyler Miller's  
Living in the Environment  
12<sup>th</sup> Edition**

## ***Chapter 11***

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# ***Key Concepts***

- **Factors affecting human population size**
- **Human population problems**
- **Managing population growth**

# ***Factors Affecting Human Population Size***

## **➤ Population change equation**

$$\text{Population Change} = (\text{Births} + \text{Immigration}) - (\text{Deaths} + \text{Emigration})$$

## **➤ Zero population growth (ZPG)**

## **➤ Crude birth rate (BR)**

## **➤ Crude death rate (DR)**

***Refer to Fig. 11-2 p. 239***

# Natural Rate of Increase

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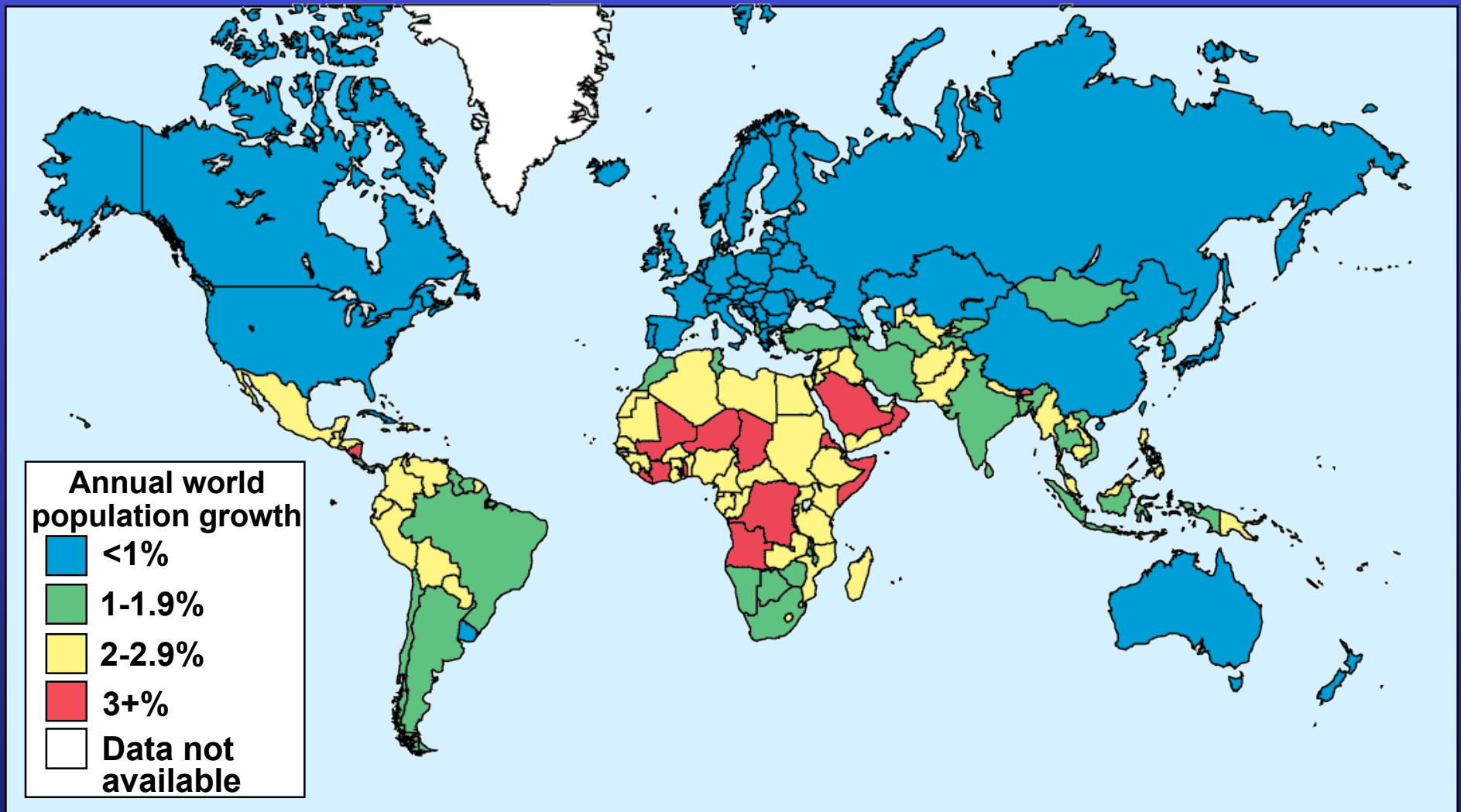
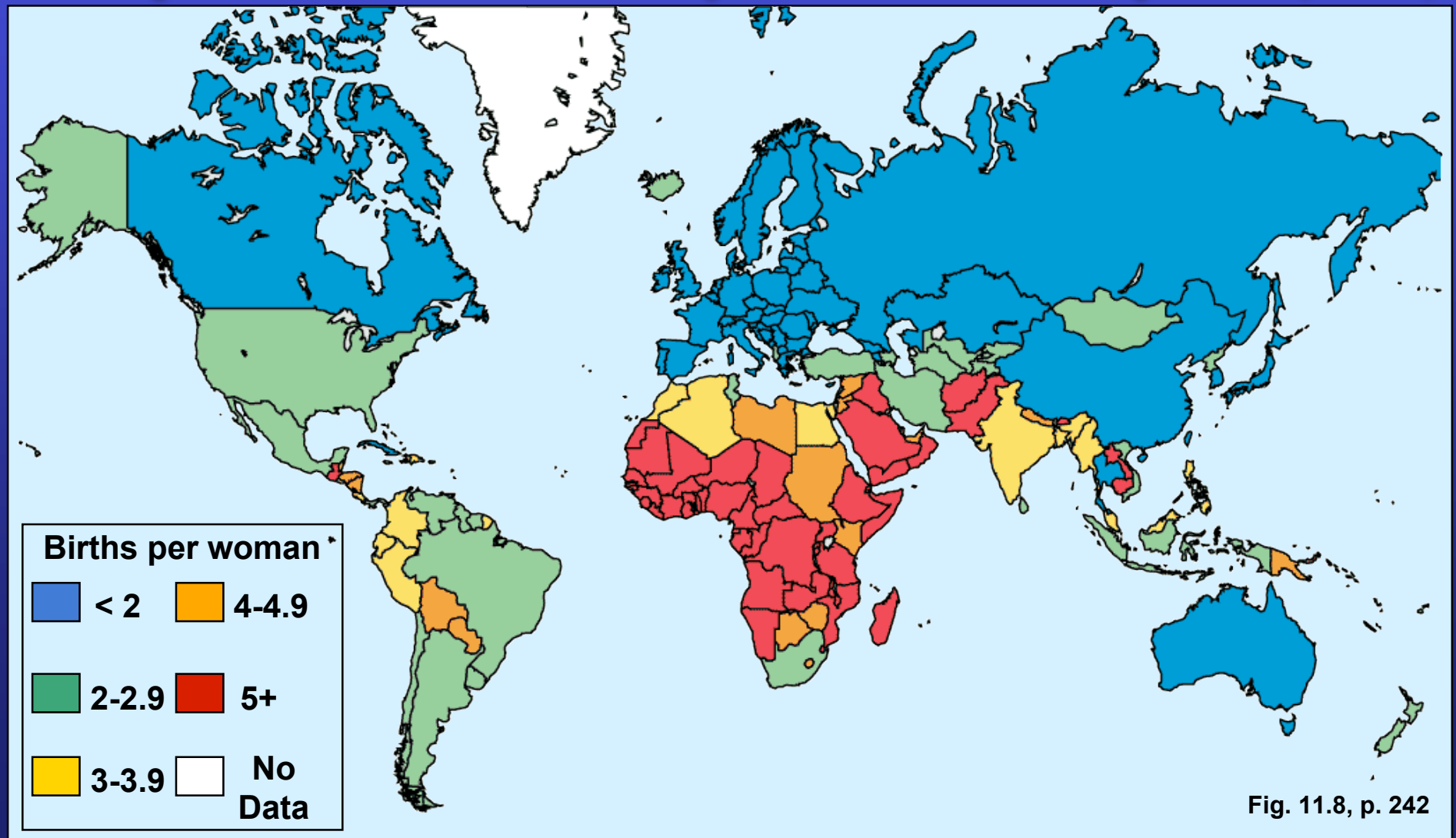


Fig. 11.3, p. 240



# Fertility Rates

➤ Replacement-level fertility ➤ Total fertility rate (TFR)



# *Factors Affecting BR and TFR*

- See bulleted list in text p. 243
- US BR's and TFR's

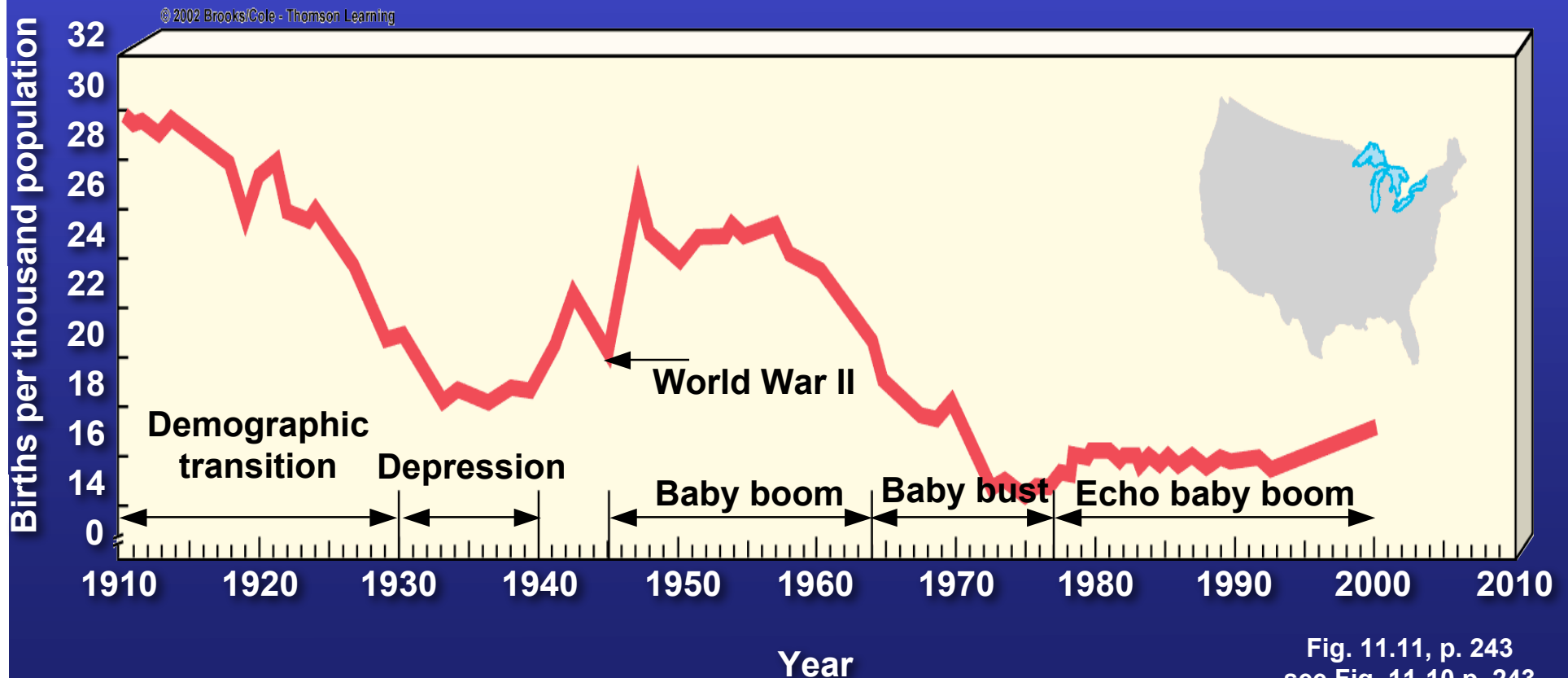
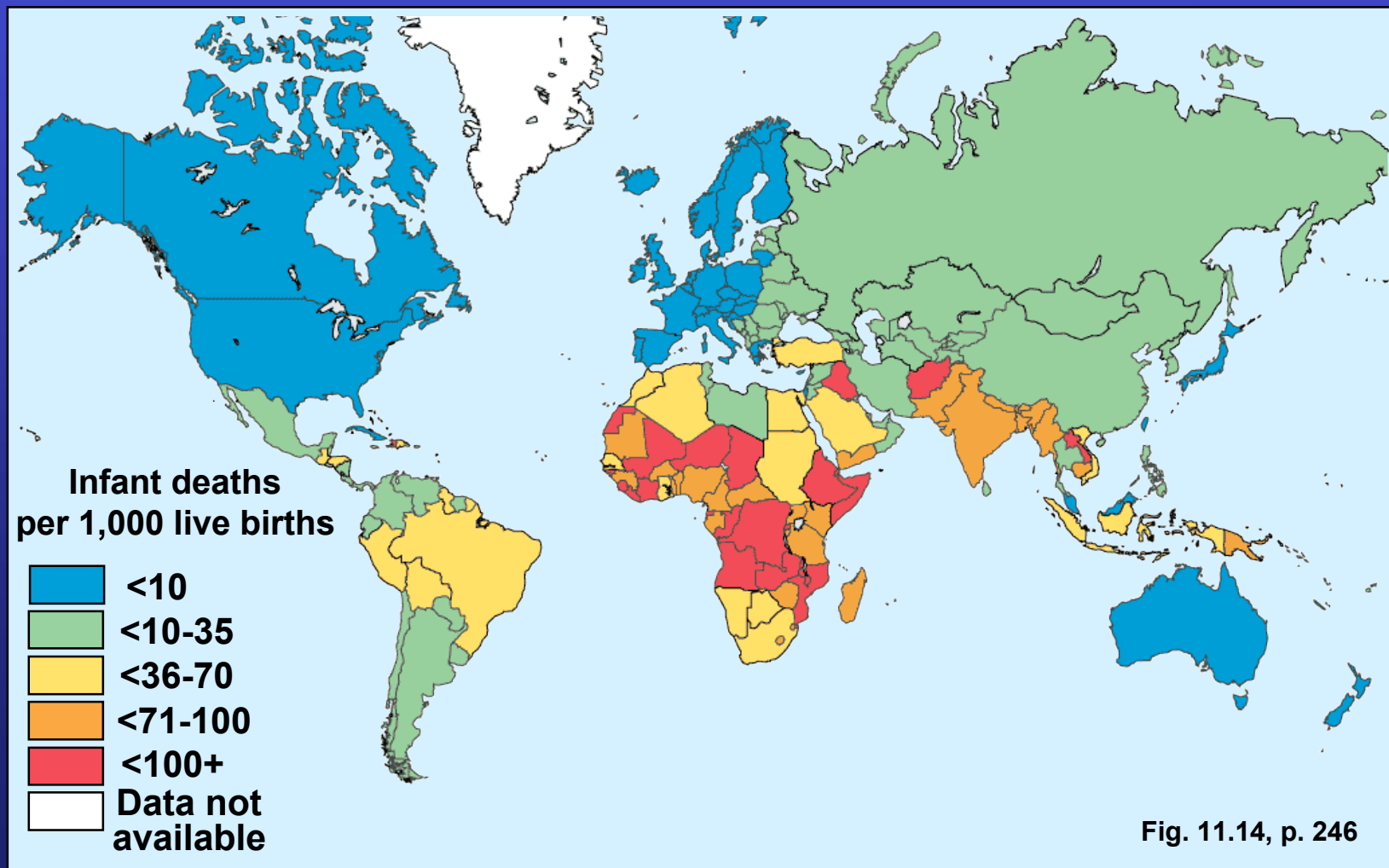


Fig. 11.11, p. 243  
see Fig. 11-10 p. 243

# *Factors Affecting DR*

- Life expectancy
- Infant mortality rate (IMR)



# Factors Affecting Natural Rate of Increase

Rate of natural increase = crude birth rate - crude death rate

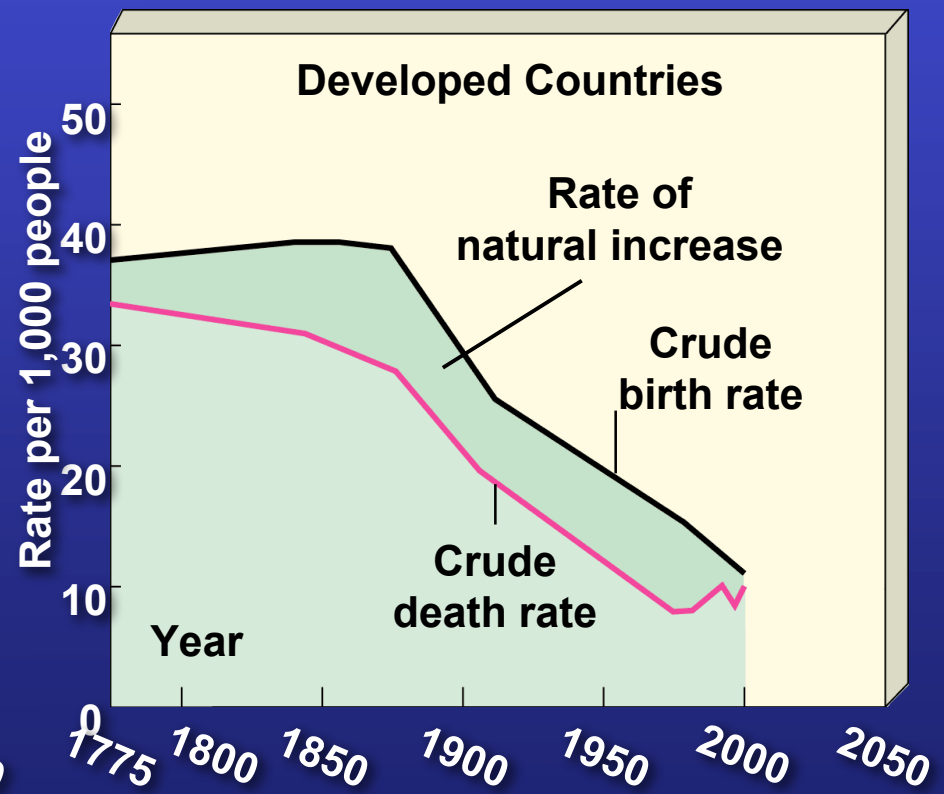
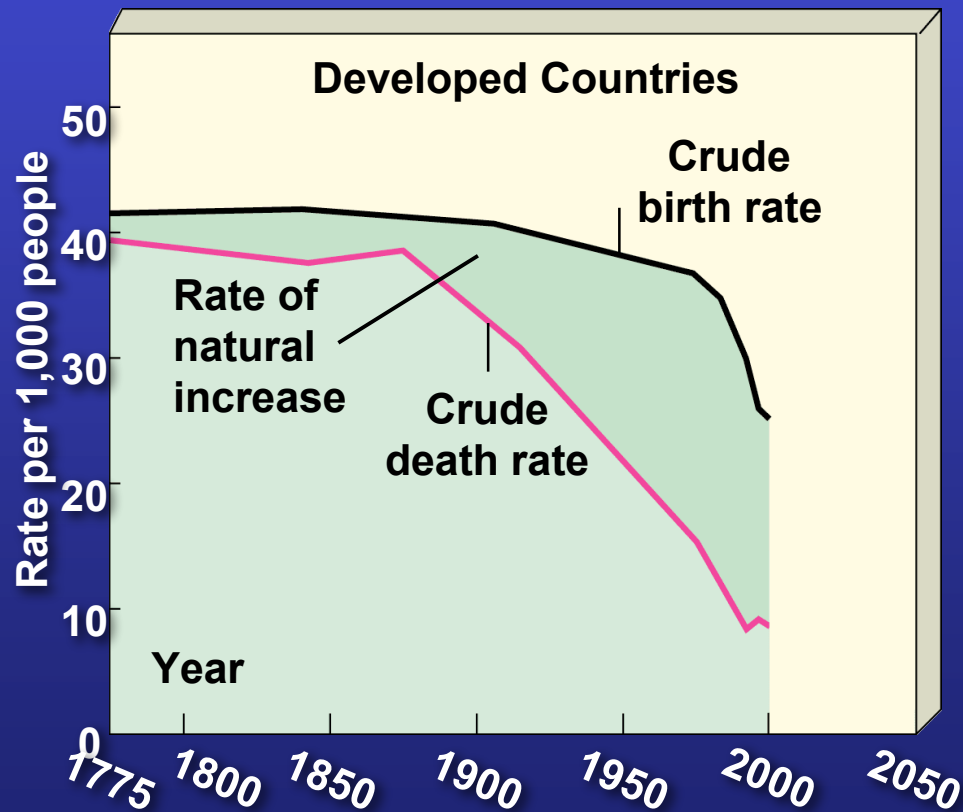


Fig. 11.13, p. 245

# Population Age Structure

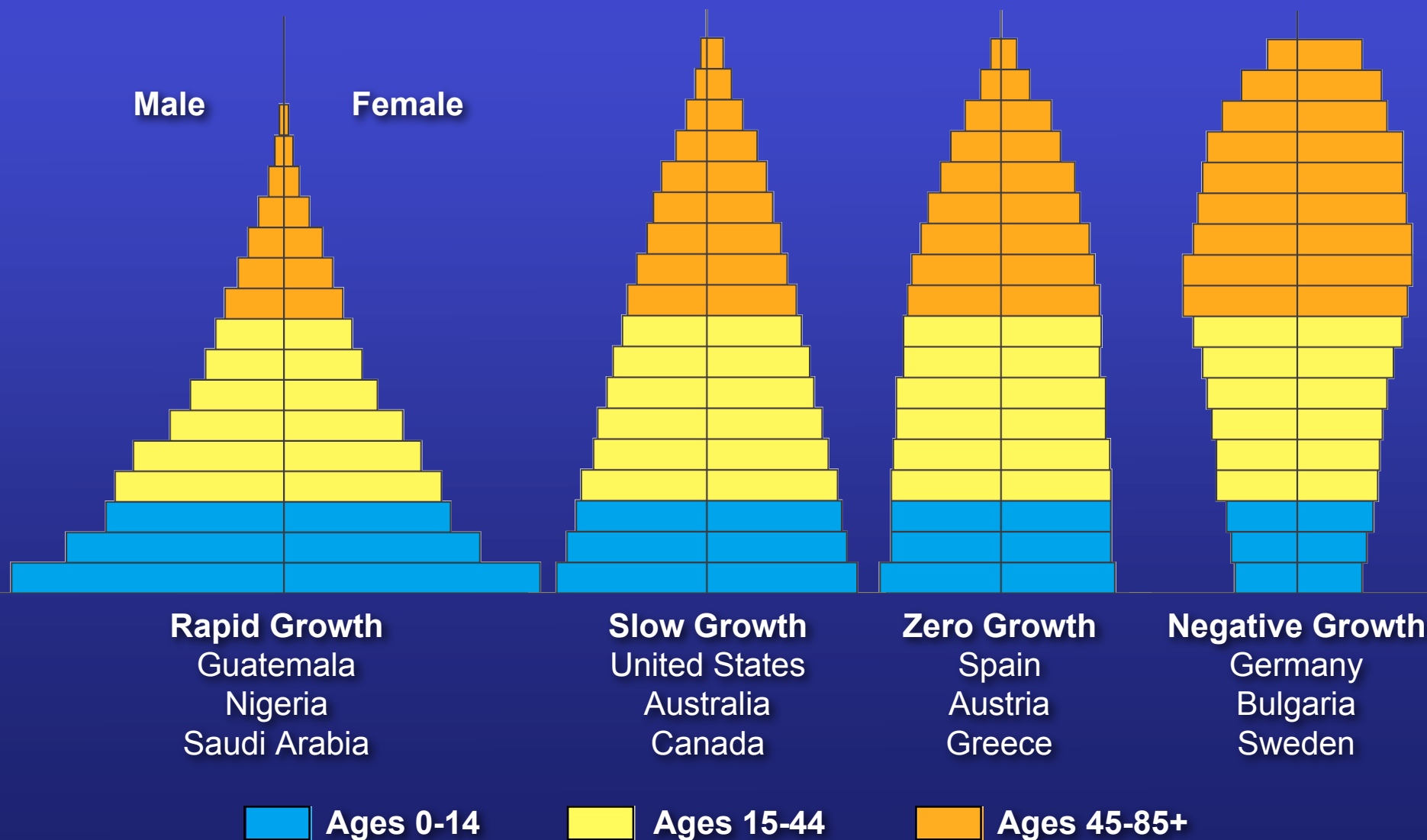


Fig. 11.16a, p. 247

# ***Solutions: Influencing Population Size***

- **Migration**
- **Environmental refugees**
- **Reducing births**
- **Family planning**
- **Empowerment of women**
- **Economic rewards and penalties**



# *The Demographic Transition*

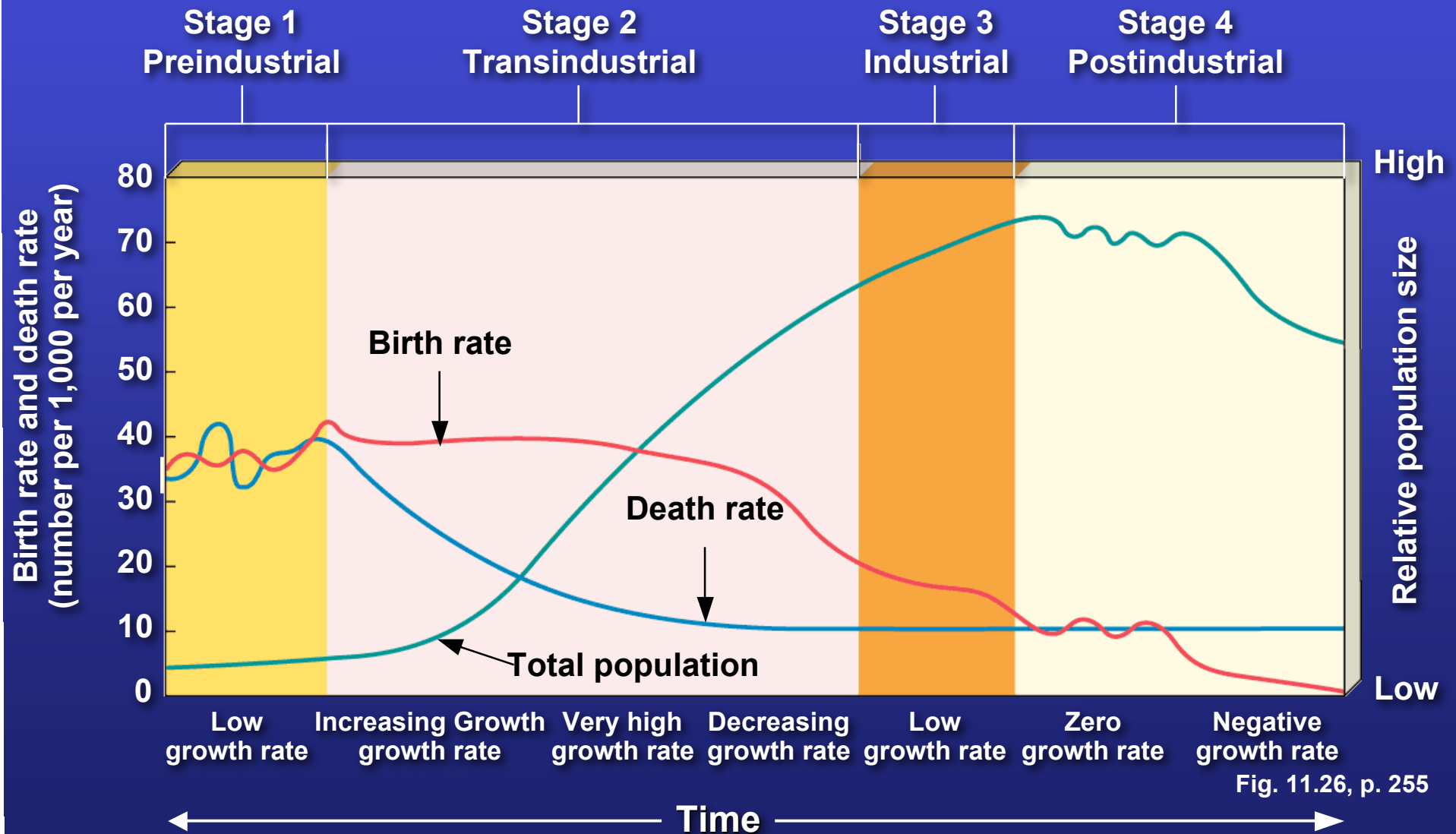


Fig. 11.26, p. 255



# ***Case Study: Slowing Population Growth in India***

## **Generally disappointing results:**

- **Poor planning**
- **Bureaucratic inefficiency**
- **Low status of women**
- **Extreme poverty**
- **Lack of support**

# ***Case Study: Slowing Population Growth in China***

## **Generally positive results:**

- **Economic incentives**
- **Free medical care**
- **Preferential treatment**
- **Intrusive and coercive**
- **Locally administered**

# ***Cutting Global Population Growth***

- **Family planning**
- **Reduce poverty**
- **Elevate the status of women**